Unification & Simplification Through:

- Cooperation
- Innovation
- Opportunity

EGIM Workshop

Enterprise Services

Unifying Our Vision. Simplifying Our Services Delivery.

Tim Quinn
Chief Telecommunications Systems Division, OCIO

Moving to Enterprise Approach

- Telecommunications Systems Division
- Enterprise Services Center
- Governance
- Enterprise Services Network
- Quality and Performance Based Solutions

Telecommunications Systems Divison

- Role expanded beyond traditional telecommunications services
- Networks provide platforms for enterprise services
- Can’t separate the network from the computer
- Convergence – Voice, Video, Radio and Data all over IP and all can be viewed as a form of data.
- The Radio is turning into a computer
- Rename to Enterprise Infrastructure Division
- Emphasis on engaging the power of Bureaus

Interior's Enterprise Services Center (ESC)

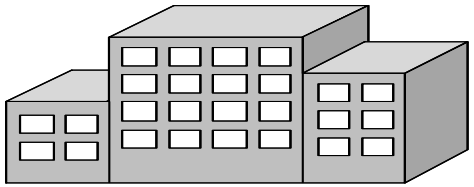
A Base of Operations for Managing Interior's Enterprise Services Network and Other Enterprise Initiatives

DOI Enterprise Services Center

- DOI OCIO is Subleasing a Portion of the Existing BIA Facility in Herndon, VA
- The Aggregate Operations at the Facility form Interior's Enterprise Services Center (ESC)
- The Enterprise Services Center Will Host:
  - The Interior Network and Security Operations Center (NOSC)
  - IT Staff Working on Enterprise Initiatives (e.g. ESN, Enterprise Messaging, Web Consolidation)
- The FBMS Project is the Largest Enterprise Initiative in Recent Years
  - Consequently, FBMS Project Management Office Is Operating Out of the Enterprise Services Center (ESC) Taking Advantage of Synergy with Other Enterprise Initiatives

DOI Enterprise Services Center (ESC)

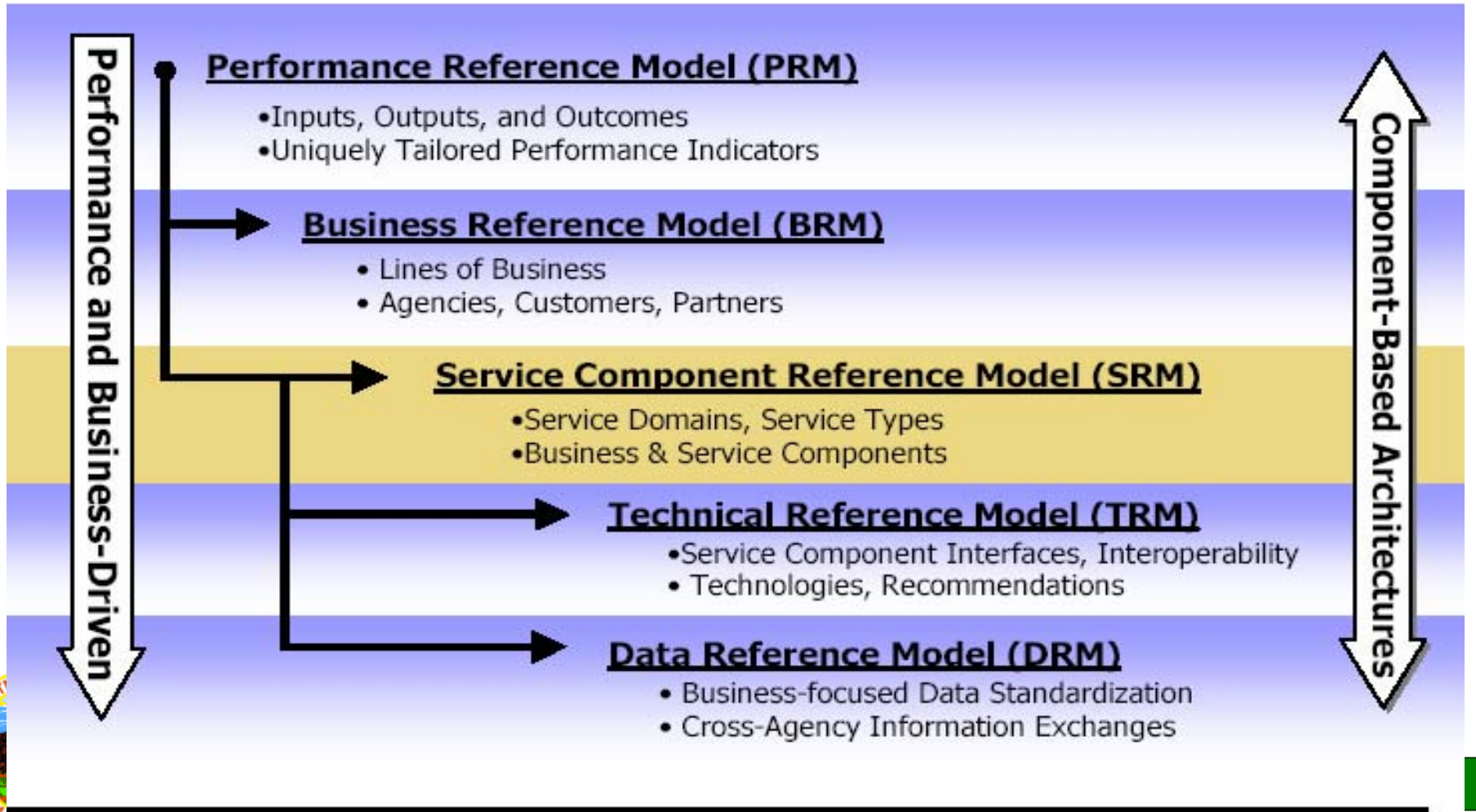
Herndon, VA



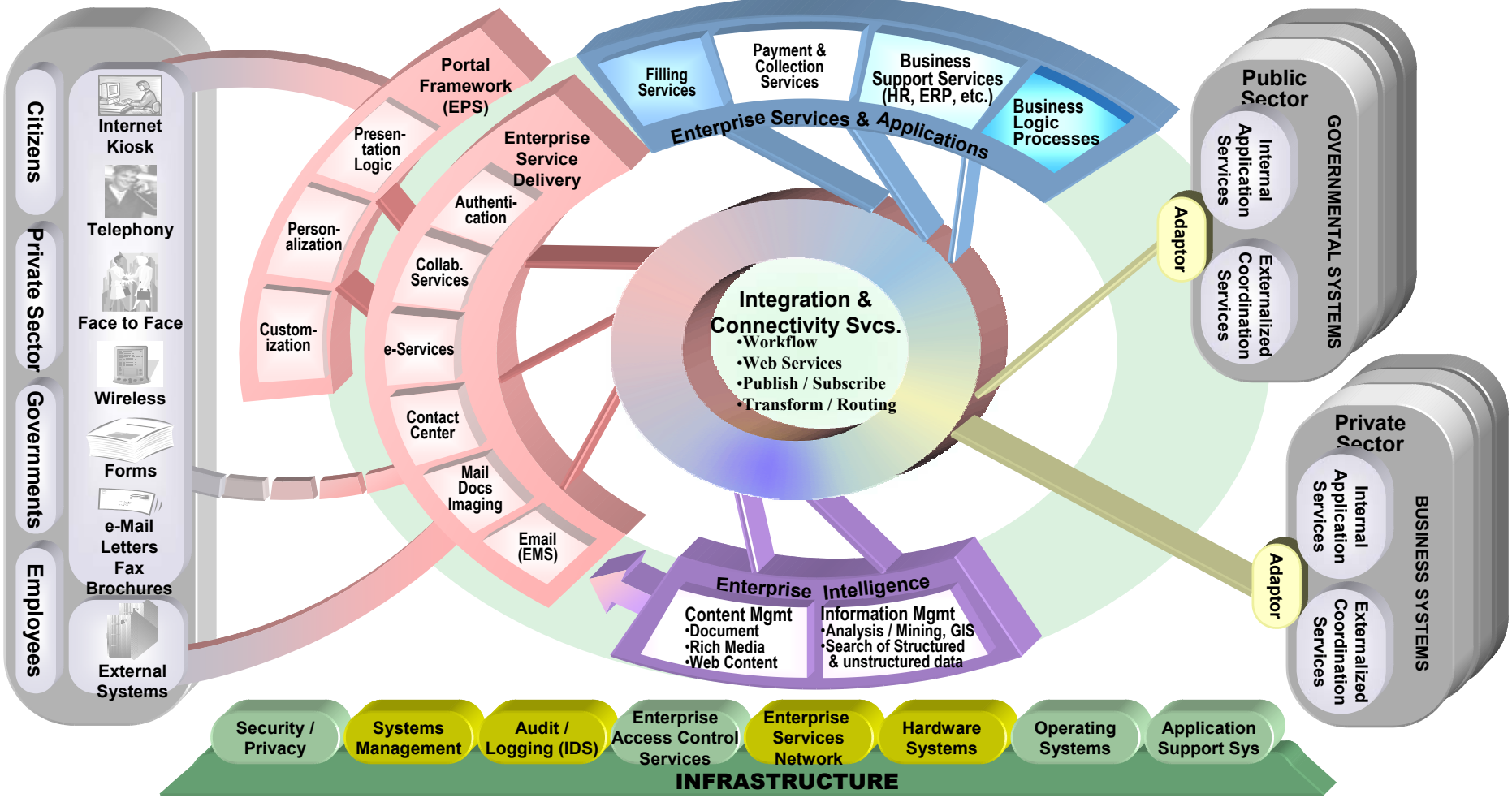
- DOI OCIO Telecommunications Staff & Enterprise Project Management
  - Enterprise Services Network
  - Enterprise Access Control Services/Active Directory
  - Enterprise Messaging Consolidation
- The Financial and Business Management System (FBMS) – Project Management Office
- Main Interior Building Computer Room (relocated)
- NBC Support Personnel
- Building is Shared with BIA's Office of the CIO
- Strict Physical and Logical Access Controls Between BIA and the Office of Policy, Management and Budget (PMB)
- Groundwork for future enterprise initiatives

Enterprise Services Center Hosts
Interior's Network Operations and Security Center

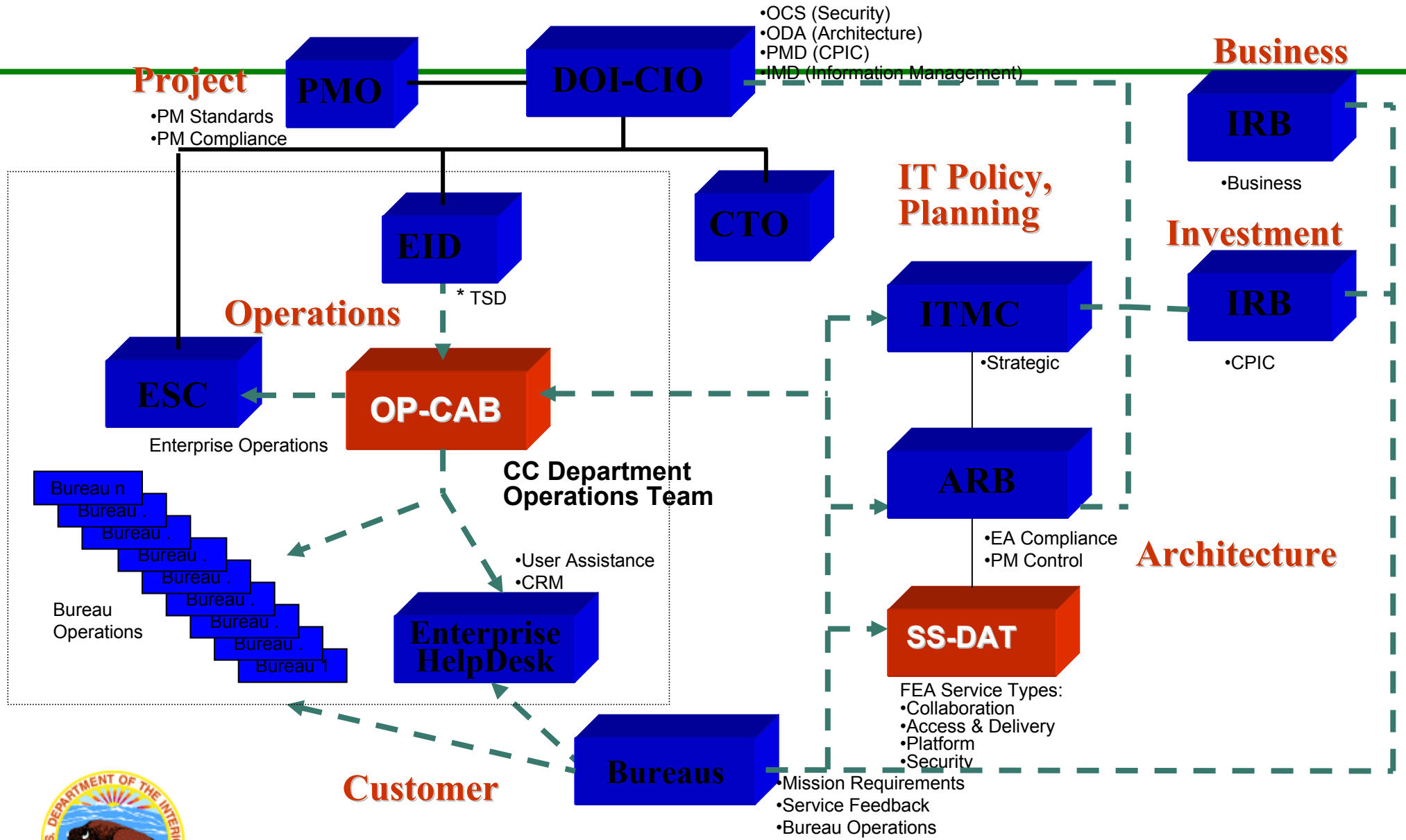
Federal Enterprise Architecture Model



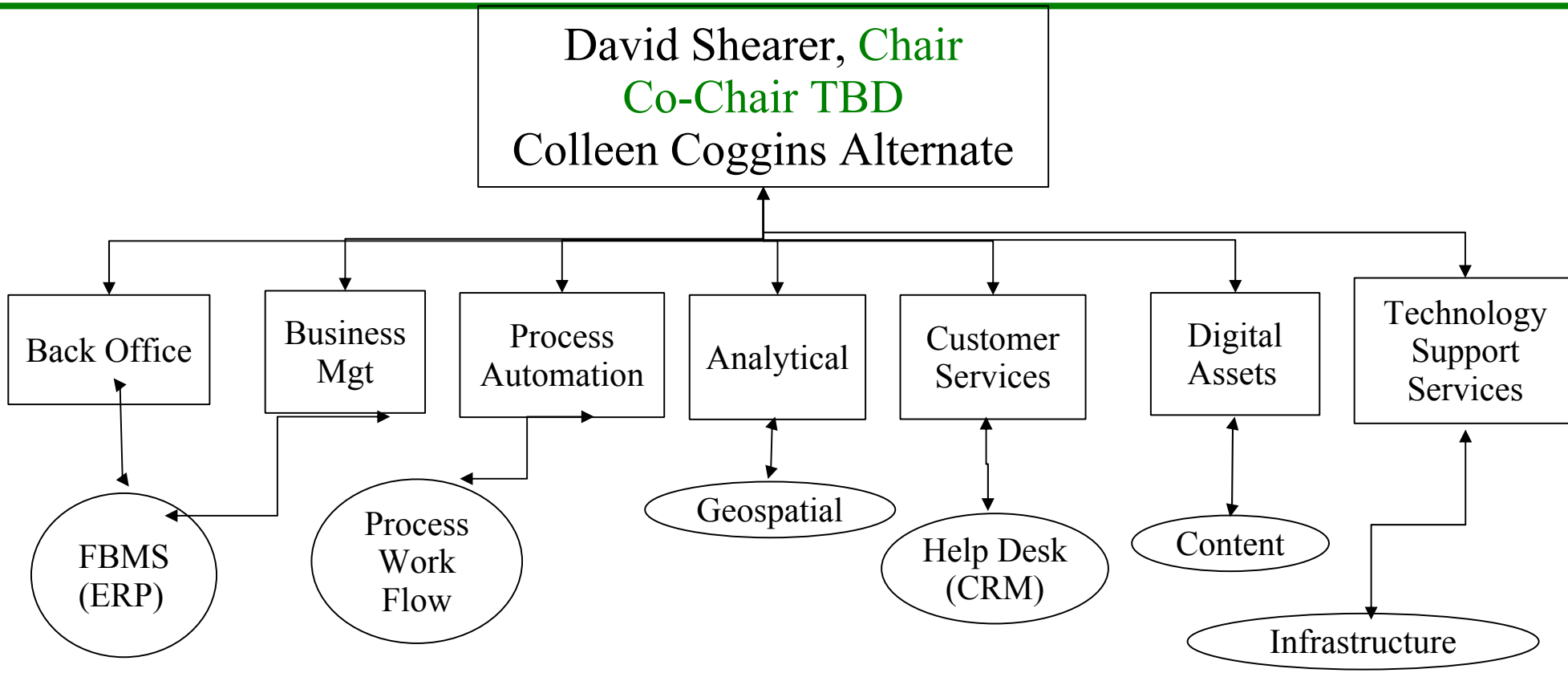
Enterprise Digestive Tract



Governance


•OCS (Security)
•ODA (Architecture)
•PMD (CPIC)
•IMD (Information Management)
Business
Project
•PM Standards
•PM Compliance
PMO
DOI-CIO
IRB
•Business
IT Policy, Planning
Investment
EID
CTO
* TSD
ITMC
IRB
Operations
•Strategic
•CPIC
ESC
OP-CAB
Enterprise Operations
CC Department Operations Team
ARB
•EA Compliance
•PM Control
Architecture
Bureau n
Bureau .
Bureau .
Bureau .
Bureau .
Bureau .
Bureau .
Bureau .
Bureau 1
Bureau Operations
•User Assistance
•CRM
Enterprise HelpDesk
SS-DAT
FEA Service Types:
•Collaboration
•Access & Delivery
•Platform
•Security
Customer
Bureaus
•Mission Requirements
•Service Feedback
•Bureau Operations

Domain Architecture Teams within ARB



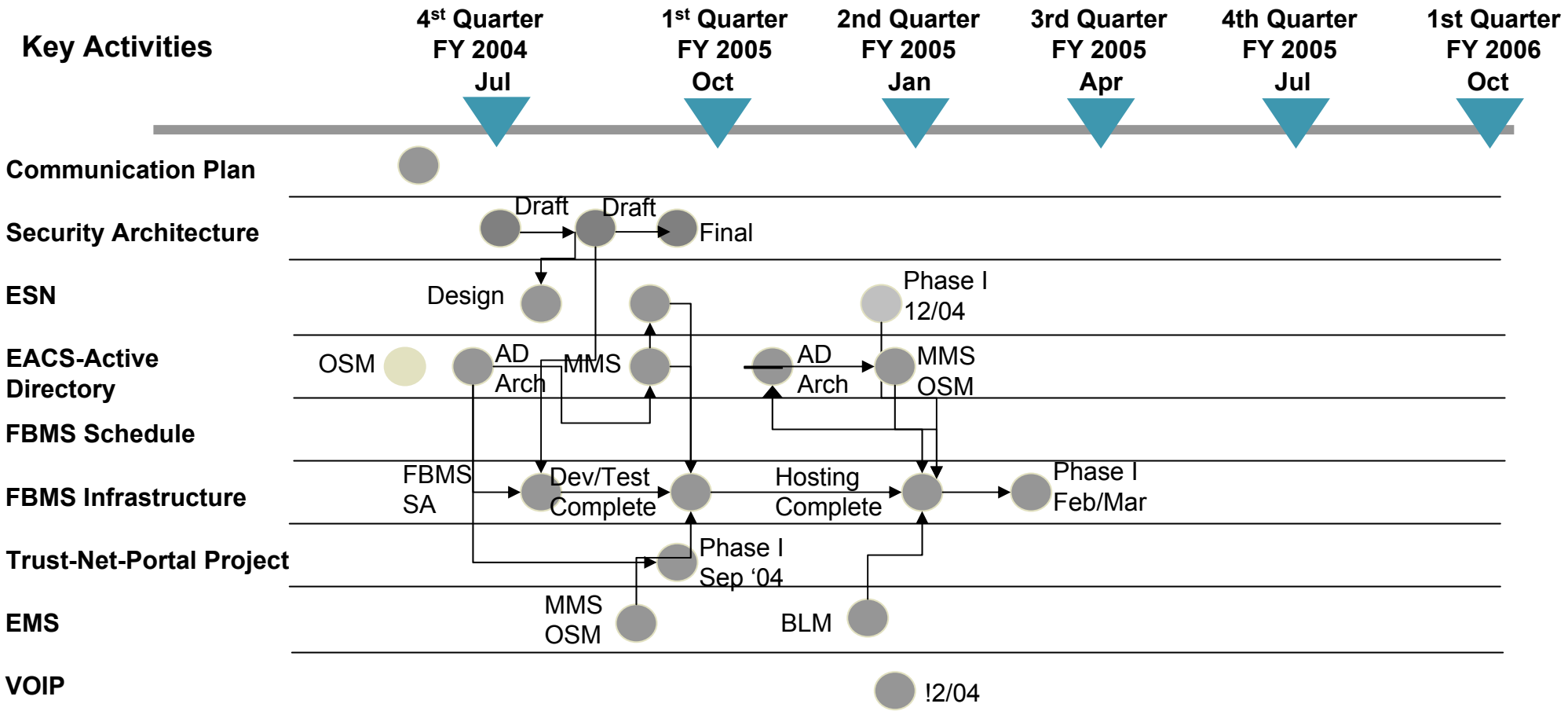
People are already doing something in these areas

Focus Them on the Why:

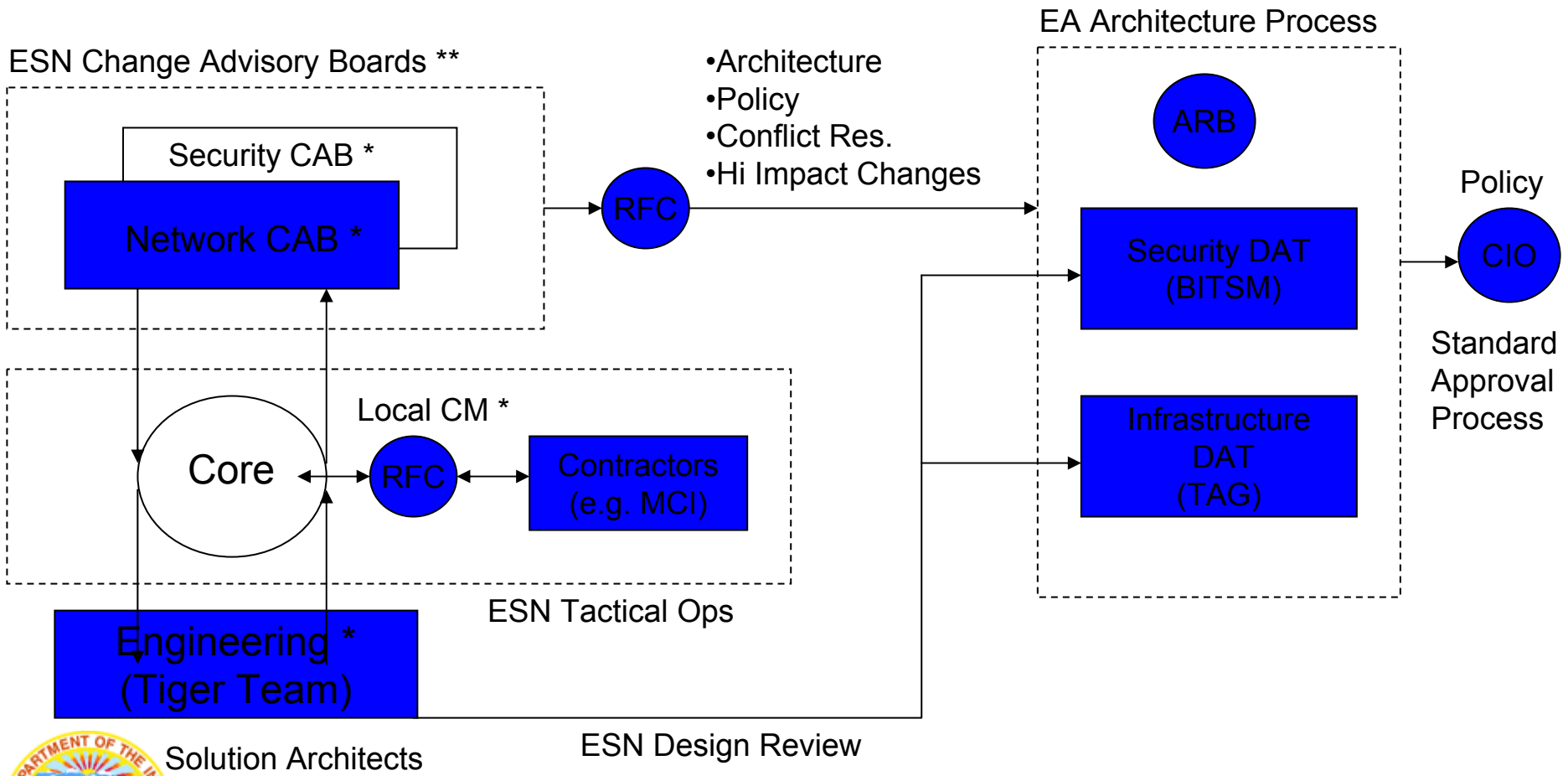
- Increase interoperability, reliability
- Reduce acquisition and maintenance costs

Through Enterprise wide and continued Process Improvement

DOI Critical Projects at a glance

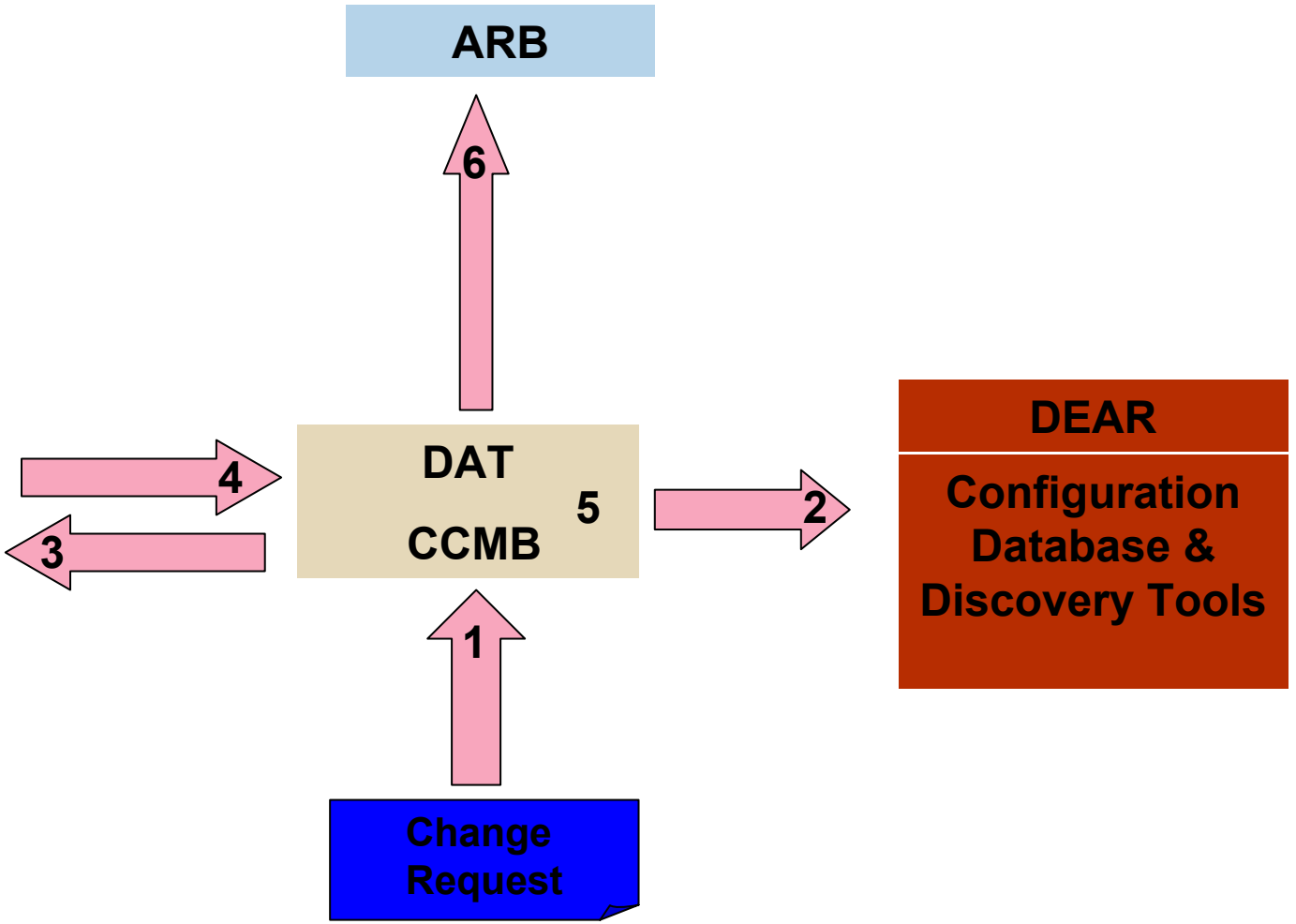


Operational Configuration Management



Change Request Process

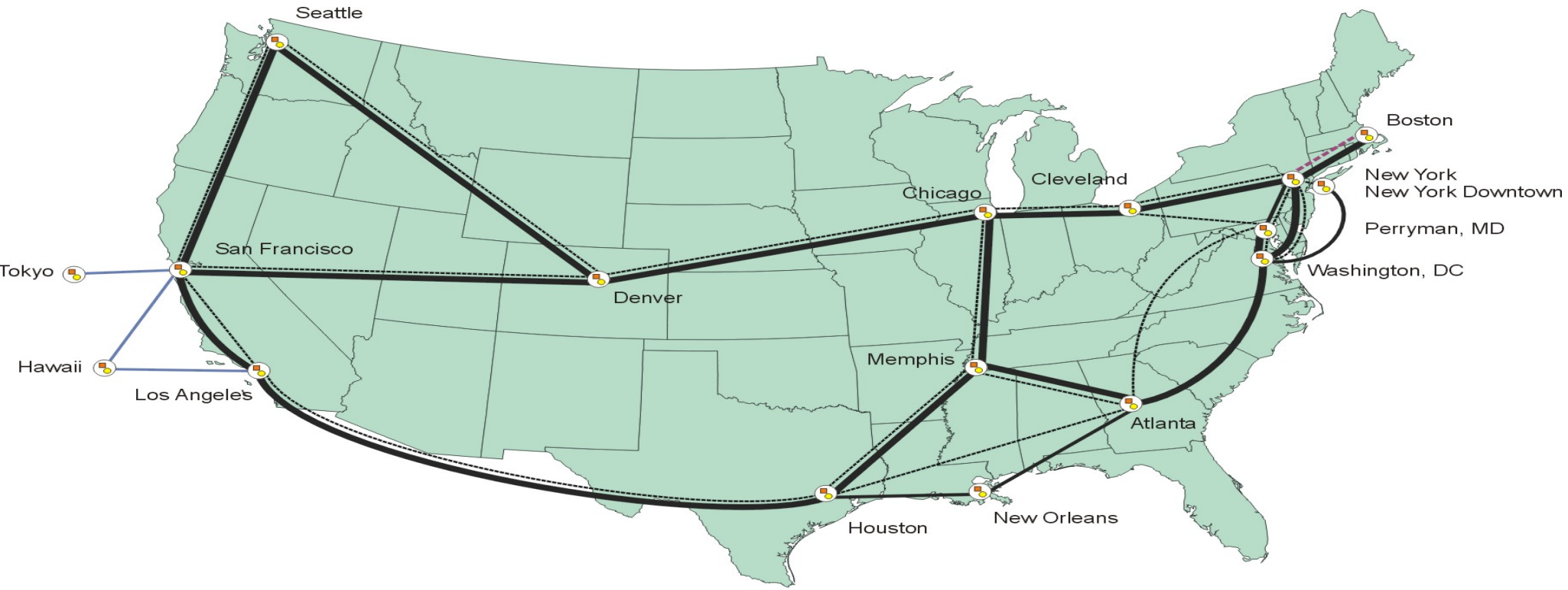
- ESN
- EACS
- PKI
- Messaging
- Helpdesk
- Desktop
- Server
- Printing
- Storage
- FTS Networx
- Wireless
- Cellular
- IP Services



Enterprise Services Network

MCI Core MPLS Network

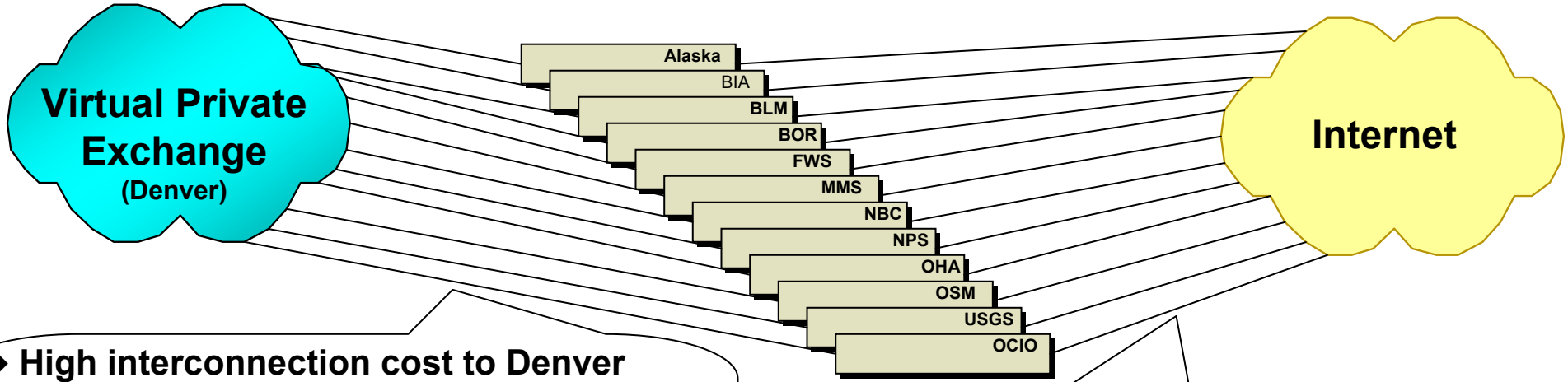
Unifies Our Wide Area Networks and Simplifies Our Operations



The Current DOI Bureaus/Offices Wide Area Networks Are Overly Complex

CONCEPTUAL Representation

"As-is" DOI Enterprise Network"

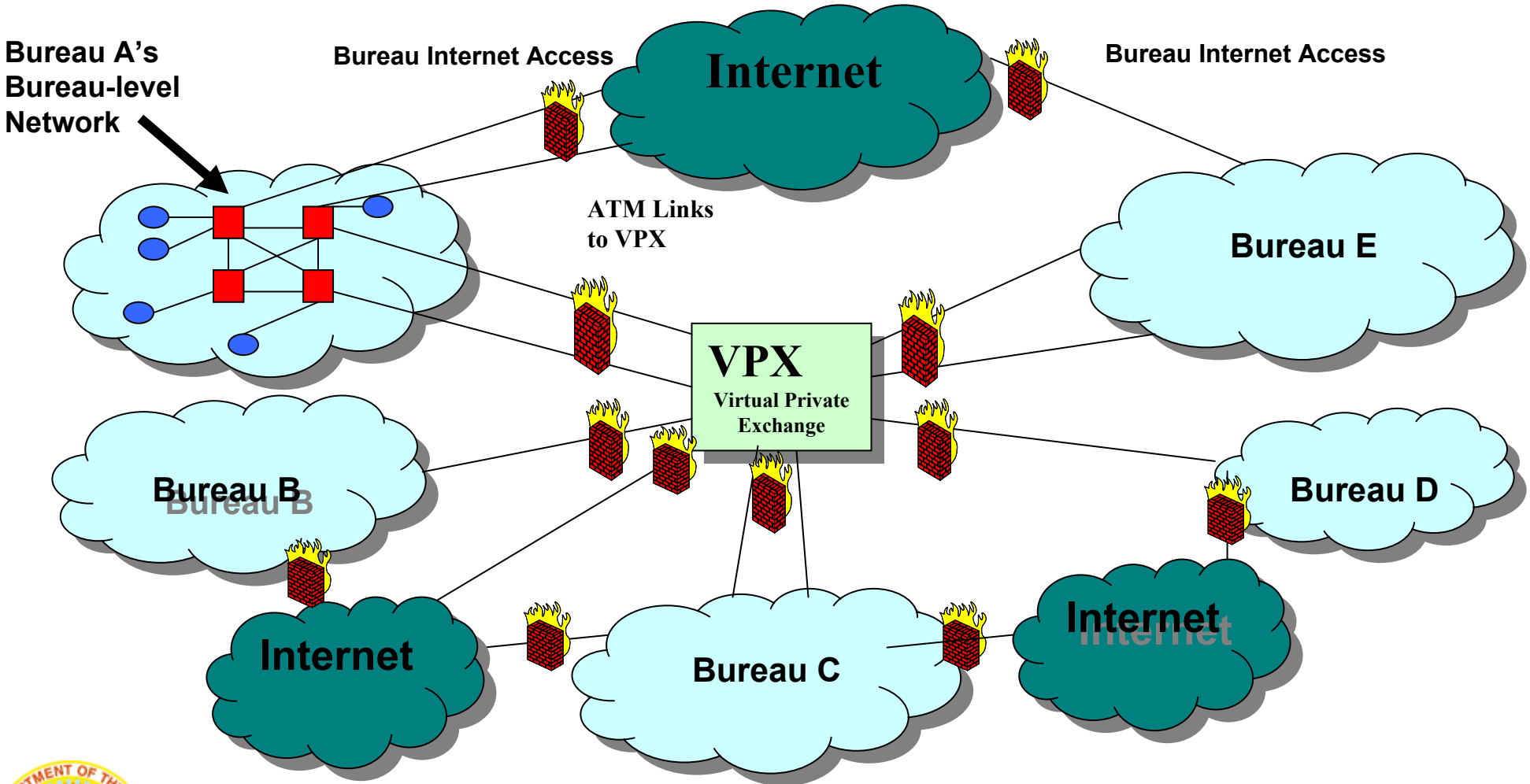


- High interconnection cost to Denver private exchange via individual leased lines from each bureau
- No centralized security
- Difficult to manage new capacity and service requirements

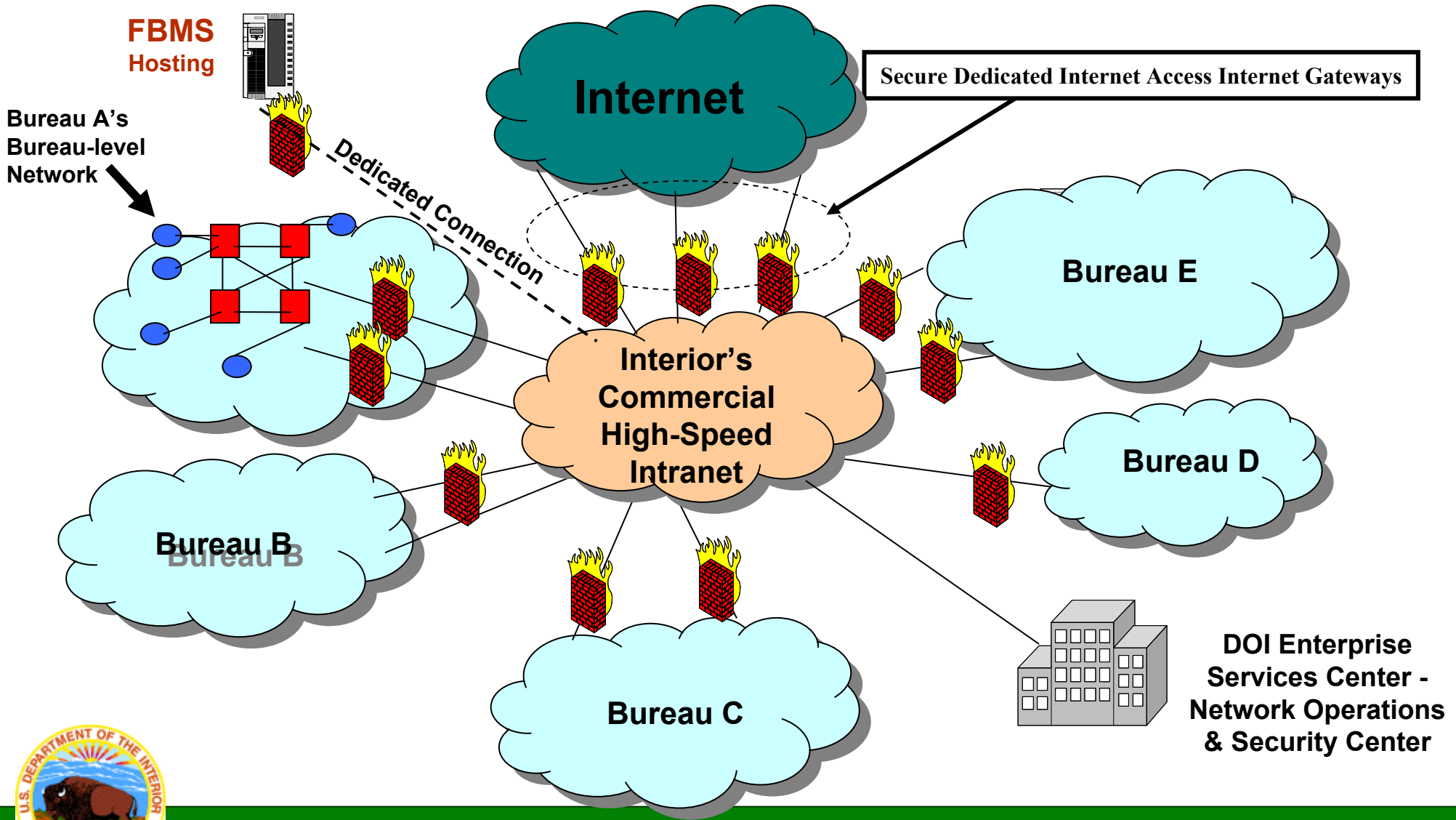
- 33 major internet connections from among our Bureaus/Offices
- 24/7 monitoring of 33 major access points is challenging and costly
- No centralized point to secure and monitor ingress/egress Internet points of presence

Individual Bureau/Office Intranet

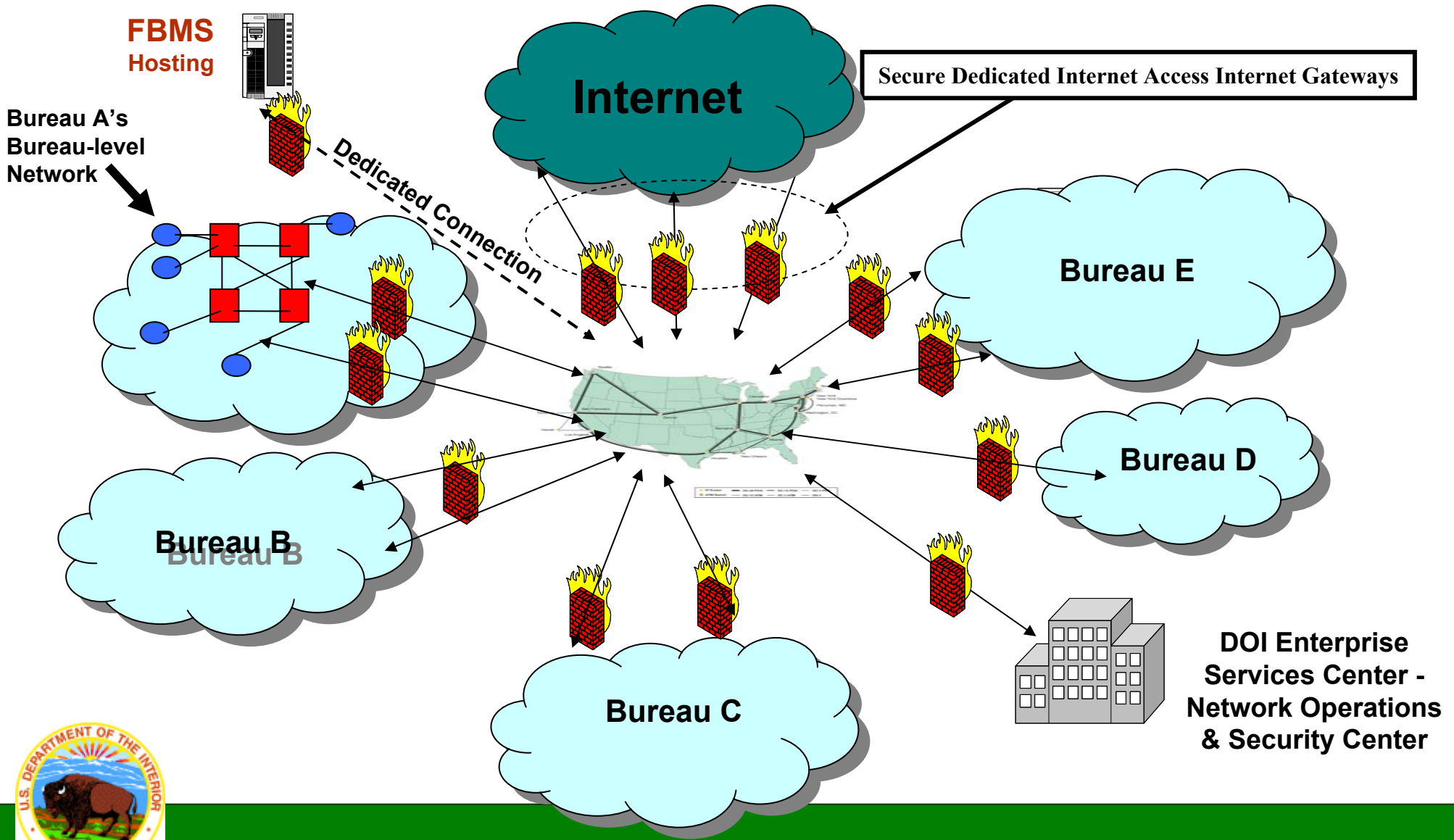
Internet Access Points Are Challenging to Manage



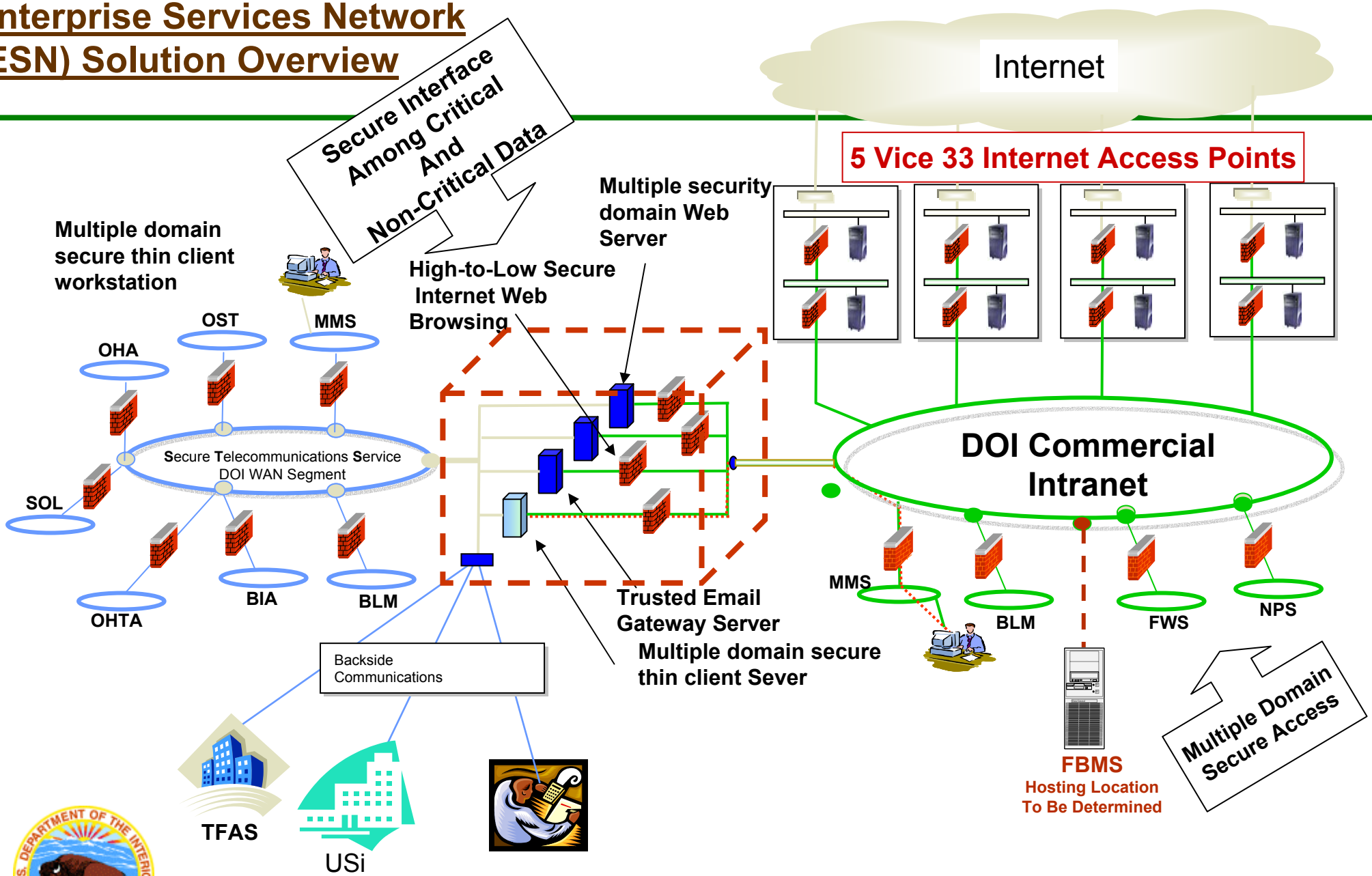
ESN Phase 1
Unified Internet & Intranet Access



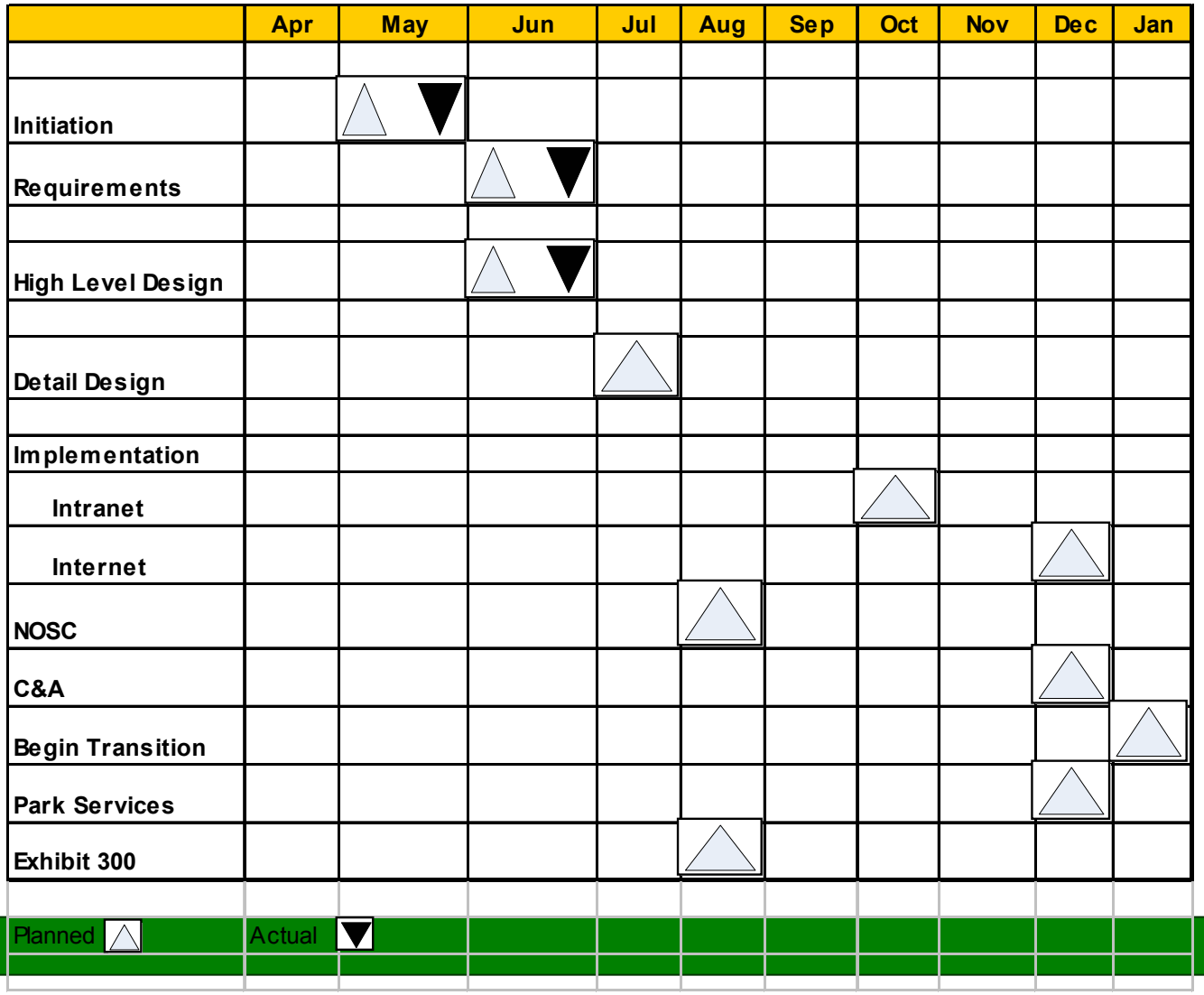
ESN Phase 1
Unified Internet & Intranet Access



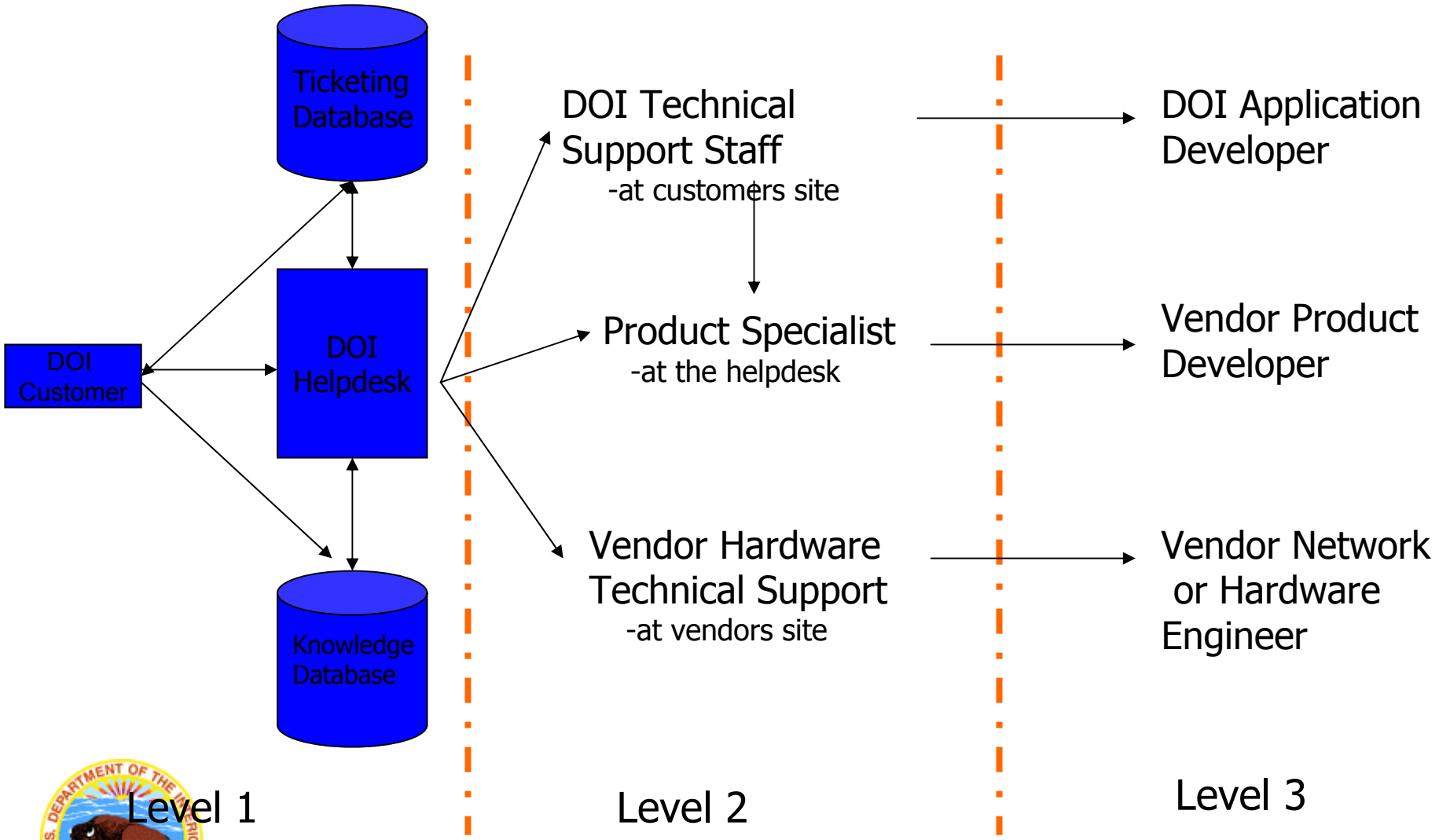
Enterprise Services Network (ESN) Solution Overview



ESN Milestone Chart



Technical Support Process



Why Do This:

- **Obsolescence.** Interior Has Not Done a Good Job Refreshing Wide Area Network Infrastructure
  - For Example, the National Park Service Estimates that 40% of the Wide Area Network Components Beyond Life Cycle

- **Savings.** For Example, the National Park Service Spends Roughly $20 Million Per Year in Telecommunications Costs
  - NPS ESN Costs in FY 05 are Projected at $18M = $2M Savings
  - NPS ESN Costs in FY 06 are Projected at $12M = $8M Savings

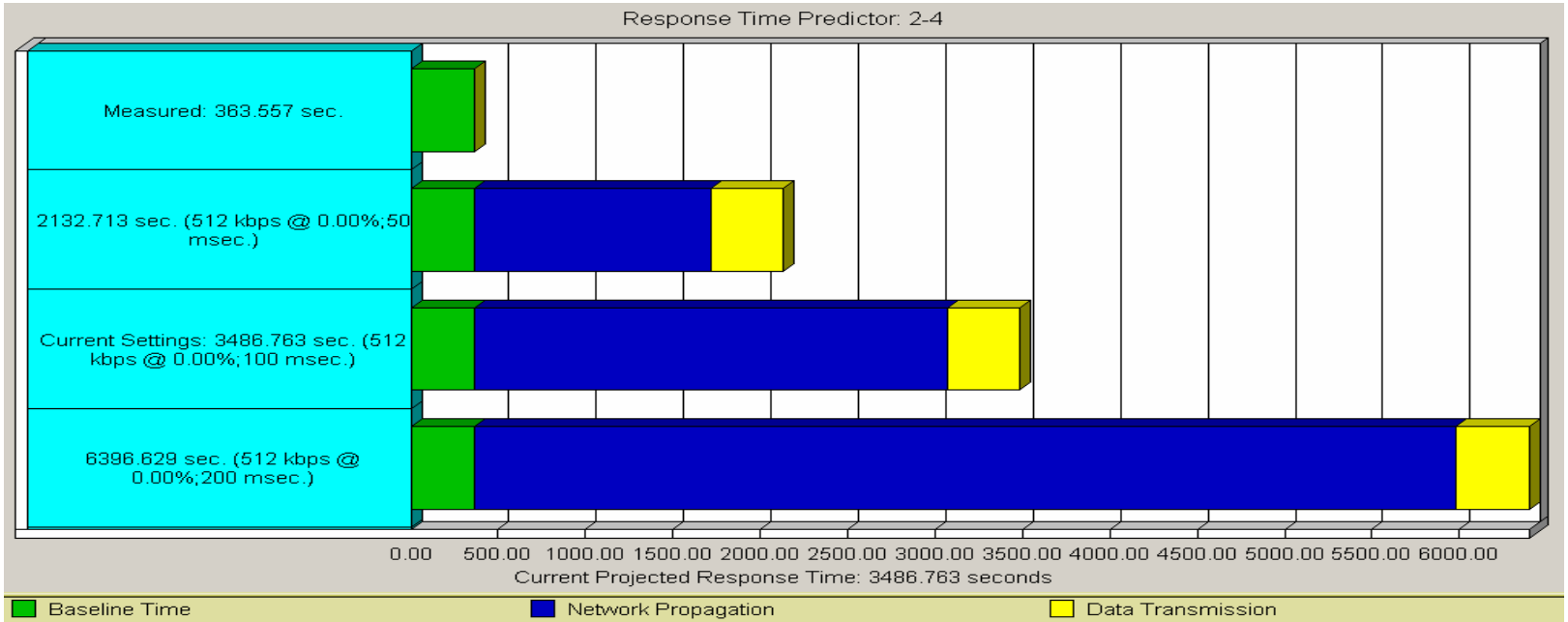
- **Centralized Monitoring.** Bureaus/Office No Longer Need to Provide For Internet Intrusion Detection and Prevention

What Do We Get?

- Phase 1:
  - Establish Standardized Internet Gateways with Intrusion Detection System
  - Create an Interior-wide Intranet/Extranet
  - Stand up the Network Operations and Security Center
- Phase 2:
  - Redeployment of Bureau/Office Wide Area Networks to Enterprise Services Network (ESN)

Moving to Performance Management

The anticipated response time in a WAN for the GIS transaction can range from 36 minutes to almost 2 hours, 40 minutes.



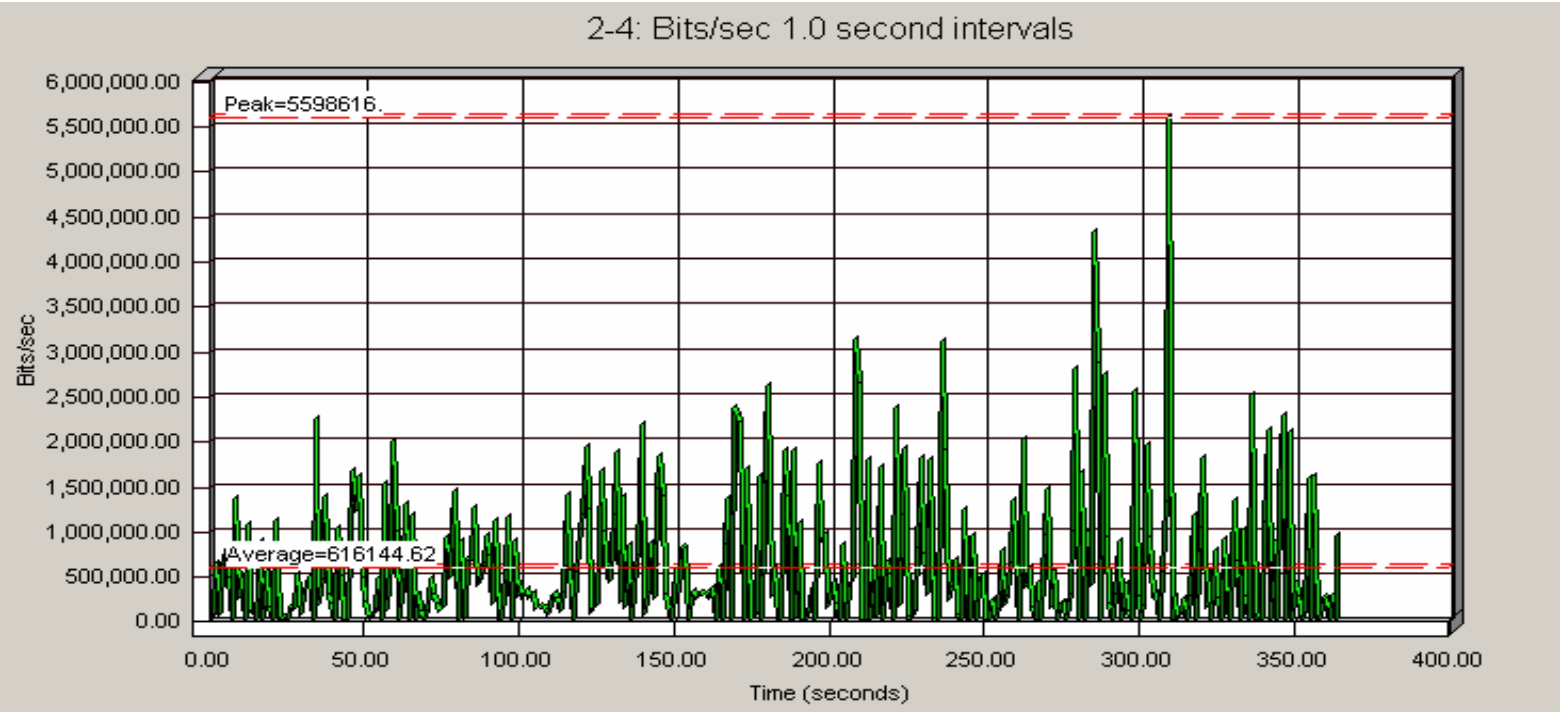
- Application turns have the most significant impact on performance on networks with latency.
- This transaction's performance would be prohibitive in any environment outside of a fast LAN (even LAN speeds yields over 6 minutes response time).

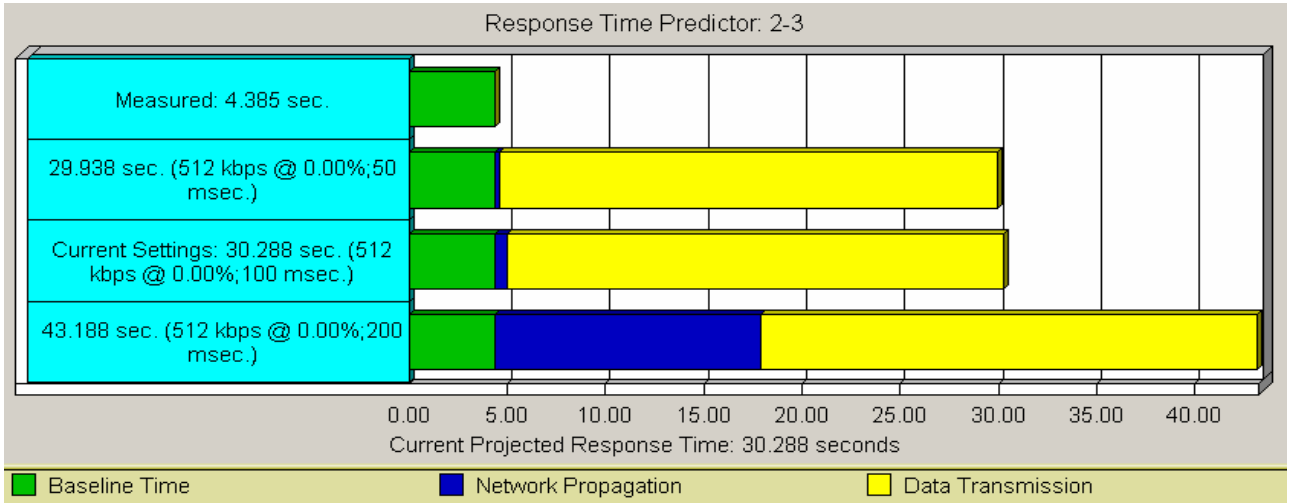
What's the problem?

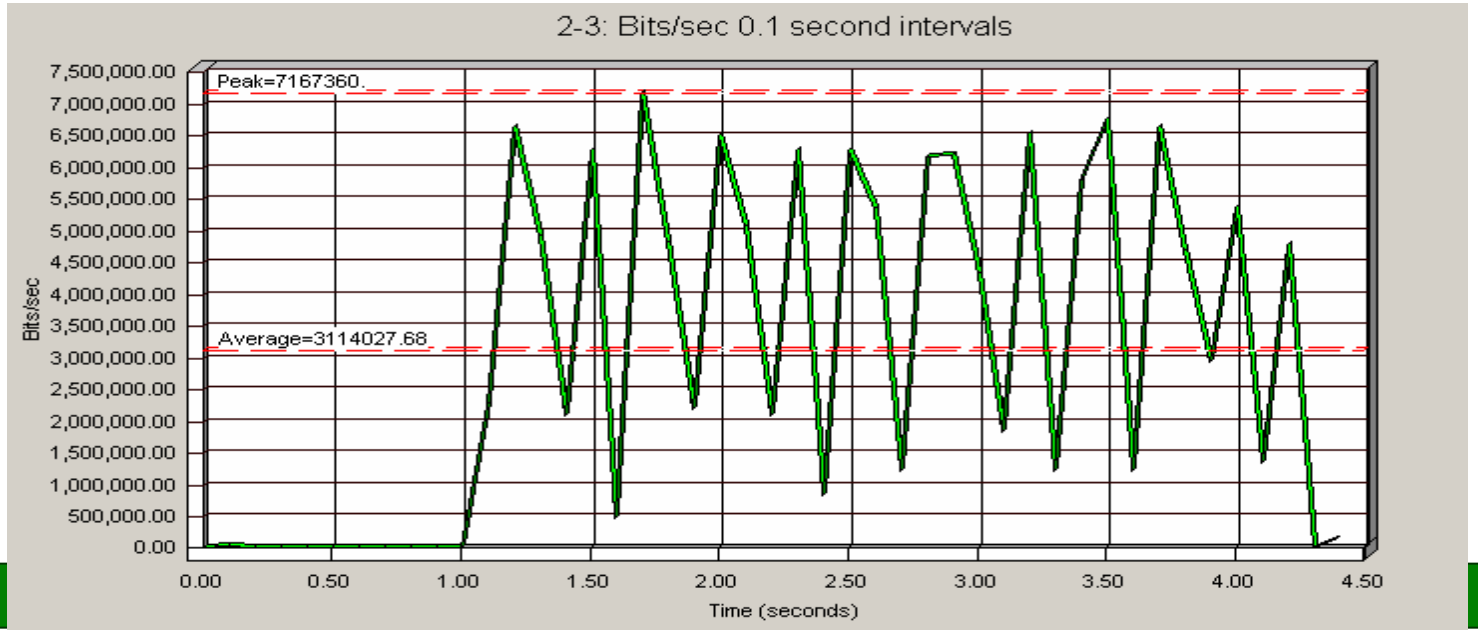
- The application took 27,081 turns on the network to move a 28 megabyte GIS file.

- 27,081 turns X 100 ms. = 2,708 seconds

Application Time Plot




Response Time Predictor: 2-3
Measured: 4.385 sec.
29.938 sec. (512 kbps @ 0.00%;50 msec.)
Current Settings: 30.288 sec. (512 kbps @ 0.00%;100 msec.)
43.188 sec. (512 kbps @ 0.00%;200 msec.)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
Current Projected Response Time: 30.288 seconds
Baseline Time
Network Propagation
Data Transmission


2-3: Bits/sec 0.1 second intervals
Peak=7167360.
Average=3114027.68
Bits/sec
7,500,000.00
7,000,000.00
6,500,000.00
6,000,000.00
5,500,000.00
5,000,000.00
4,500,000.00
4,000,000.00
3,500,000.00
3,000,000.00
2,500,000.00
2,000,000.00
1,500,000.00
1,000,000.00
500,000.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
Time (seconds)

Application performance

- **SQL structure:**

  Engineer SQL queries in a manner that communicates as infrequently as possible with the database and retrieves the largest, feasible chunks of data at one time.

- **Performance Criteria for Testing:**

  Constrained environment: Describe your environment i.e. 200 ms of latency, 128kbps of bandwidth.

  Transaction must complete in 5 seconds.

  Performance based software development contracts.

- **HTML (Web based) generally efficient.**

Network Performance

- Increase bandwidth with larger “pipes”.
- Reduce latency with higher speed switching equipment.
- Monitor traffic by type and direction to identify and correct bottlenecks.

- Bottom Line: NO FINGER POINTING WE ALL SHARE IN SOLVING THE PERFORMANCE EQUATION.

Unification & Simplification Through:

- Cooperation
- Innovation
- Opportunity

Questions and Answers

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